What is claimed is:

1. A light probe microscope comprising:

a probe capable of generating a light field locally existing in a tip portion;

probe position detecting means for controlling a distance between a tip of the probe and a sample to an adjoining distance,

tremor means and control means;

scan means for two-dimensionally scanning the probe on a sample surface;

a light source for generating the locally existing light field;

a converging optical system for converging a light radiated from the sample surface adjoining the probe tip; and

data collecting means, wherein a two-dimensional image of the sample surface is obtained in real time by a two-dimensional image sensor, and a two-dimensional light image is obtained simultaneously with a shape image by the data collecting means by means of obtaining a signal intensity of an optional detection region in the two-dimensional image by picture signal processing means.

2. A light probe microscope set forth in claim 1, wherein a light signal of specified wavelength can be selectively obtained by disposing a spectroscope in a front stage of the two-dimensional image sensor.

3. A light probe microscope set forth in claim 1, wherein the converging optical system is composed of an optical system containing a polarizer and a mirror, and different polarization components form images respectively in separate positions on the two-dimensional image sensor.

4. A light probe microscope set forth in claim 1, wherein the converging optical system is composed of an optical system containing a dichroic mirror and a mirror, and different wavelength components form images respectively in separate positions on the two-dimensional image sensor.

5. A light probe microscope set forth in claim 1, wherein the detection region can be simultaneously set in plural number, and plural light images can be simultaneously obtained.

6. A light probe microscope set forth in claim 2, wherein the detection region can be simultaneously set in plural number, and plural light images can be simultaneously obtained.

7. A light probe microscope set forth in claim 3, wherein the detection region can be simultaneously set in plural number, and plural light images can be simultaneously obtained.

8. A light probe microscope set forth in claim 4, wherein the detection region can be simultaneously set in plural number, and plural light images can be simultaneously obtained.

9. A light probe microscope set forth in claim 1, wherein the two-dimensional image is obtained as a video signal, and a signal of optical picture is updated by a video rate.

10. A light probe microscope set forth in claim 1, wherein in the picture processing means, a video signal is digitized, a light intensity of the detection region is calculated, and it is transmitted to the data collecting means as a digital value intact or by being converted into an analog value.

11. A light probe microscope set forth in claim 1, wherein it is made possible by an external data collecting unit other than the data collecting means to obtain a picture synchronizing with the shape image by means of transmitting a data obtaining trigger signal from the data collecting means.

12. A light probe microscope set forth in claim 5, wherein the light image for every different wavelength component is obtained by setting the detection region for each of plural different wavelength components in the light probe microscope.

13. A light probe microscope set forth in claim 6, wherein the light image for every different wavelength component is obtained by setting the detection region for each of plural different wavelength components in the light probe microscope.

14. A light probe microscope set forth in claim 7, wherein the light image for every different wavelength component is obtained by setting the detection region for each of plural different wavelength components in the light probe microscope.

15. A light probe microscope set forth in claim 8, wherein the light image for every different wavelength component is

obtained by setting the detection region for each of plural different wavelength components in the light probe microscope.

16. A light probe microscope set forth in claim 12, wherein there is performed an extraction of spectral spectrum at an optional measuring point in a scan region on the basis of the light image for the every wavelength component continuously set in a wavelength axis direction.

17. A light probe microscope set forth in claim 13, wherein there is performed an extraction of spectral spectrum at an optional measuring point in a scan region on the basis of the light image for the every wavelength component continuously set in a wavelength axis direction.

18. A light probe microscope set forth in claim 14, wherein there is performed an extraction of spectral spectrum at an optional measuring point in a scan region on the basis of the light image for the every wavelength component continuously set in a wavelength axis direction.

19. A light probe microscope set forth in claim 15, wherein there is performed an extraction of spectral spectrum at an optional measuring point in a scan region on the basis of the light image for the every wavelength component continuously set in a wavelength axis direction.

20. A light probe microscope set forth in claim 5, wherein by means of setting by the spectroscope a wavelength of excited light at the probe tip so as to become outside an image region

of the two-dimensional image sensor, an S/N ratio of a wavelength signal other than the excited light is improved.

21. A light probe microscope set forth in claim 6, wherein by means of setting by the spectroscope a wavelength of excited light at the probe tip so as to become outside an image region of the two-dimensional image sensor, an S/N ratio of a wavelength signal other than the excited light is improved.

22. A light probe microscope set forth in claim 7, wherein by means of setting by the spectroscope a wavelength of excited light at the probe tip so as to become outside an image region of the two-dimensional image sensor, an S/N ratio of a wavelength signal other than the excited light is improved.

23. A light probe microscope set forth in claim 8, wherein by means of setting by the spectroscope a wavelength of excited light at the probe tip so as to become outside an image region of the two-dimensional image sensor, an S/N ratio of a wavelength signal other than the excited light is improved.

24. A light probe microscope set forth in claim 1, wherein the converging optical system converges a light having transmitted through the sample or a light reflected by the sample.

25. A light probe microscope set forth in claim 1, wherein the converging optical system converges a light having passed through an optical aperture of the probe.

26. A light probe microscope set forth in claim 11, wherein an image of selective range portion of the two-dimensional image sensor is continuously preserved as it is synchronously with the trigger signal.